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ABSTRACT

This series of nine information sheets was published by the Environmental Education and Training Partnership. The first six sheets describe the title topic, then provide a list of print resources indexed in ERIC and the Eisenhower National Clearinghouse for Mathematics and Science Education (ENC). Titles include: (1) "Environmental Education and Learners with Disabilities"; (2) "Curricular Resources for Environmental Education and Learners with Special Needs"; (3) "Approaches to Environmental Education by Indigenous Cultures in North America"; (4) "The Philosophical Approaches To Understanding the Native American Culture through Environmental Education"; (5) "Native American Legacy of Learning-A Collage of Resources for Education about the Environment"; and (6) "The Art of Storytelling-A Popular Tool Used by Native Americans for Communicating Environmental Messages". The last three sheets cover trends and issues in environmental education. Sheets 7 and 8 describe programs that focus on teacher needs in environmental education, while sheet 9 describes experiential learning in environmental education and also provides ERIC and ENC print resources. These titles are as follows: (7) "Dwight D. Eisenhower Professional Development Federal Activities Program and Environmental Education"; (8) "The Regional Educational Laboratory Program"; and (9) "Making the Experience of Environmental Education Experiential". (PVD)

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EETAP Resource Library Information Sheets 1996 Number 1-9

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SE059605

Information Sheet for Environmental Education Resources

EETAP *Resource Library*

April 1996 Number 1

Environmental Education and Learners with Disabilities

An important component of environmental education is the exposure of learners to nature and the world beyond the classroom. For learners with special needs, the creation of an experience outside the traditional learning sites can pose challenges for the teacher as well as learners themselves. Access to non traditional learning settings and equity for all learners are commonly expressed challenges. How, for example, does an educator provide equal access to stream monitoring for a wheel-chair constrained learner as for a learner with full mobility without losing the essence of learning? Or, how does a learner with a sensory impairment have a comparable nature experience when the activities requires use of the senses including the challenged sense?

The Americans with Disabilities Act (ADA) is the civil rights guarantee for persons with disabilities in the United States. The ADA extends civil rights protections for people with disabilities to employment in the private sector, transportation, public accommodations, services provided by state and local government, and telecommunications relay services. To prepare the individuals, challenged or otherwise, for dealing with testing situations necessitates a holistic approach to education. Environmental education supports and forms an important component of this strategy.

Creating learning opportunities for students with special needs can benefit not only the learner, but also enriches the experiences for the teacher and the other learners. Sensitivity to constraints and adaptations to the teaching plan and the types of activities to be conducted are sometimes relatively simple, and other times far from simple, to change. Although there is a tremendous amount of good information on resources to accommodate learners with special needs, information specifically related to environmental education has only recently become available.

Where are the resources?

Following is a list of some resources available for educators on *environmental education and learners with disabilities* found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the material can be accessed by typing

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Print Resources

From ERIC

Filmer, R. "Environmental Education and the Disabled". ***Environmental Education Bulletin***, no 3 (November 1990) p 26-23. (EJ 449 293)
Describes specific plans for making environmental education accessible to disabled people by adapting trail systems and facilities for safety, interpretive programing, and access. Encourages the inclusion of disabled people in the wide variety of environmental education programing by presenting solutions to traditional barriers.

Hughes, A. "Interpreting the spirit of ADA!". ***Legacy***, v 6, no 3 (May-June 1995) p 6-7. (EJ 507 305)
Discusses work on a pilot project to develop guidelines for accessible interpretation that integrates disabled and mainstream visitors. Discusses program and facility designs and suggests ways to make existing interpretive programs more accessible to visitors with disabilities.

Seiler, R. "Recent Trends and Future Directions of Research in Orienteering". ***Scientific Journal of Orienteering***, v 10, no 1-2 (Fall 1994) p 3-23. (EJ 498 154)
Analyzes 220 documents on orienteering published 1984-94. Discusses publication numbers and types and content characteristics in the areas of psychological

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

aspects, physiological demands, sports, medicine and health aspects, psychological-physiological interactions, training and coaching, school programs for children and teaching manuals, orienteering for the disabled, sociological aspects, environmental aspects, and history and future development. Contains 111 references.

Seiler, R. "An annotated Bibliography". ***Scientific Journal of Orienteering***. v 10 (Fall 1994) p 1-78. (EJ 498 157)
Annotated bibliography of 220 books, monographs, and journal articles on orienteering published 1984-94 from SPOLIT database of the Federal Institute of Sport Science (Cologne, Germany). Sections include environmental aspects and programs for the disabled. Contains author index.

From ENC

Access in word and deed. Project on Science, Technology and Disability, Directorate for Education and Human Resources Programs, American Association for the Advancement of Science. Washington, DC: American Association for the Advancement of Science, 1991. (ENC-000136)
This guide is one in a series of four Barrier Free in Brief booklets designed to improve access to science and engineering education and careers for people with disabilities. This booklet has two sections. The first gives suggestions on speaking to and about people with disabilities and discusses appropriate language, courtesies, and stereotypes. The second section lists individuals with disabilities who are members of The American Association for the Advancement of Science (AAAS) Resource group of Scientists and Engineers and provide consultancies on related topics.

Access to Science Literacy. Project on Science, Technology and Disability, Directorate for Education and Human Resources Programs, American Association for the Advancement of Science. Washington, DC: American Association for the Advancement of Science, 1991. (ENC-000137)
This guide is one in a series of four Barrier Free in Brief booklets designed to improve access to science and engineering education and careers for people with disabilities. This booklet is designed to increase accessibility to out of school science programs and activities; it provides information for directors of informal science programs and for parents and teachers of young people with disabilities. The booklet includes practical advice for finding programs and a list of resources for assistive technology for specific disabilities and adaptations to disability in farm and rural settings.

Laboratories and classrooms in science and engineering. Project on Science, Technology and Disability, Directorate for Education and Human Resources Programs, American Association for the Advancement of Science. Washington, DC: American Association for the Advancement of Science, 1991. (ENC-000138)
This guide provides information and resources on adapted facilities, teaching styles and general accessibility that incorporates the needs of students with disabilities in any educational institutions as well as in research laboratories. The booklet suggests strategies for creating classroom and laboratory accommodations that enhance accessibility according to the type of disability.

Workshops and conferences for scientists and engineers. Project on Science, Technology and Disability, Directorate for Education and Human Resources Programs, American Association for the Advancement of Science. Washington, DC: American Association for the Advancement of Science, 1991. (ENC-000139)
This booklet has been developed to assist professors, administrators, and laboratory and program directors in planning and conducting professional meetings that are barrier free for all participants. It discusses the need to organize barrier free meetings . Checklists, sample forms for meeting participants, and a list of 13 additional resources are included.

This information sheet was prepared by Joe E. Heimlich, Ph. D., and Sabiha S. Daudi, GRA, EETAP Resource Library.

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Information Sheet for Environmental Education Resources

EETAP *Resource Library*

April 1996 Number 2

Curricular Resources for Environmental Education and Learners with Special Needs

Curricular resources for environmental education activities focus on experiencing the natural environment in order to better understand interrelationships, interdependence and the role of human beings in caring for natural resources. Special efforts are required to encourage participation by learners with physical as well as learning disabilities in such activities. The educators need access to appropriate curricular resources that could be used for this purpose.

The Americans with Disabilities Act (ADA) is the civil rights guarantee for persons with disabilities in the United States. The ADA extends civil rights protections for people with disabilities to employment in the private sector, transportation, public accommodations, services provided by state and local governments, and telecommunications relay services. To prepare individuals, challenged or otherwise, for dealing with testing situations necessitates a holistic approach to education. Environmental education supports and forms an important component of this strategy.

A number of resources are available and provide access to activities focusing on environmental issues. These could be used in any of the following ways:

- By adapting the suggested activities to special needs of the learners
- By directly implementing the suggested activities
- By sharing the outcomes of a suggested strategy with other educators and modifying them for future use
- By actively involving the challenged learners through a sharing process

To approach the constraints that might be a challenge for the educator and learner, a number of resources are identified below. Some of the listed resources may not be visibly related to environmental education; however, they do provide a strategy for dealing with similar situations.

Where are the resources?

Following is a list of some resources available for educators on *environmental education and learners with disabilities* found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the material can be accessed by typing

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Print Resources

From ERIC

Kathleen, M. D., and Airhart, D.L. "Teaching Environmental awareness using Terrarium". ***Teaching Exceptional Children***, v 23, no 4 (Summer 1991) p 38-41. (EJ 427 129)

Techniques for using a terrarium to teach principles of environmental science and environmental awareness to mildly retarded, learning-disabled, or gifted students are suggested. Environmental cycles (water, respiration, photosynthesis), appropriate plants, and terrarium construction and care are covered.

Introducing SAVI/SELPH. California University., Berkeley. Lawrence Hall of Science, 1981. (ED 344 755)

The SAVI/SELPH Program is the combined output of two projects funded by the U.S. Office of Education: Science Activities for visually Impaired (SAVI) and Science Enrichment for Learners with Physical handicaps (SELPH). The program is composed of three

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major components (1) printed activity instructions and other information material for the teacher (2) student equipment kits; and (3) and an educational philosophy for incorporating science into the curriculum of disabled students.

Curriculum for Students with Special Needs. Lean County schools, Tallahassee, Fla. 1991. (ED 349 431)

This curriculum guide is designed to help special education adult educators enable adult handicapped students to develop, enhance and maintain basic skills and competencies commensurate with their interests and ability levels. Accompanied by test instruments and inventories, the guide focuses on (1) functional skills - severely and profoundly handicapped; (2) functional skills - moderately handicapped; and (3) adult basic academic skills.

Update on Gifted Education. Volume 1, 1991. ***Update on Gifted Education***, v 1, no 1-4, spring-winter 1991 (ED 346 654)

This document is the first volume of a projected quarterly publication designed to assure that most current information on the latest research and on successful practices in the field of gifted education is made available to schools. The four issues of this volume contain many articles on the subject including *An Interdisciplinary Unit on Environmental studies* (a unit based on a program developed by Tom Weldon and adapted for use in Texas schools by Betty Strickland); *Gifted Learning Disabled Students: Questions and Answers* (Anne J. Udall); and *Thematic-based Curriculum: The Key to Connected learning* (Violet Hanney and Nora Woods).

From ENC

Froschl, M., Rubin, E., and Sprung, B., ***Including all of us: an early childhood curriculum about disability.*** New York, NY: Educational Equity Concepts, Inc. 1984. (ENC-002876)

This resource is a guide for creating an early childhood curriculum that is multi cultural , nonsexist and focuses on the integration of actual role models as well as images of children and adults with disabilities into the class room environment. Activities and background information, list of materials and supplies, and procedures for each activity are provided. Also included is information about disabilities, curriculum materials, children's books, background reading for teachers and parents, and national disability organizations.

Environmental energy. SAVI/SELPH, Berkeley, CA: Center for Multisensory Learning, Lawrence Hall of Science, The University of California, 1983. (ENC-000181)

Science activities for the visually Impaired and Science Enrichment for Learners with Physical Handicaps (SAVI/SELPH) is an interdisciplinary, multisensory science enrichment program designed for blind and visually impaired, orthopedically handicapped, learning disabled, learning disabled, developmentally disabled, emotionally handicapped, hearing impaired and non-disabled students in grades 4-7. Nine modules compose this program, and each encompasses a separate content area. This module explores environmental energy. A matrix provides activity descriptions, science concepts, process skills, application skills, language development, and related learning resources for this module.

Environments. SAVI/SELPH, Berkeley, CA: Center for Multisensory Learning, Lawrence Hall of Science, The University of California, 1983. (ENC-000182)

The SAVI/SELPH program consists of three major components: printed activity instructions for teachers, student equipment kits, and an educational philosophy for incorporating science into the curriculum of disabled students. Nine modules compose this program, and each encompasses a separate content area. This module explores environments. Four activities are included: *Environmental Planting; Sea What Grows; Isopods; and The Wanted Weed. Follow Up* sessions after each activity also provide a mini assessment activity to be conducted with each student individually.

This information sheet was prepared by Sabiha S. Daudi, GRA, EETAP Resource Library.

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Information Sheet for Environmental Education Resources

EETAP *Resource Library*

April 1996 Number 3

Approaches to Environmental Education by Indigenous Cultures in North America

One of the major goals of environmental education is to prepare a citizenry capable of making informed choices and able to address its environmental concerns through positive actions. One way to achieve this is by encouraging sharing of knowledge and exchange of experiences between different cultures.

Many cultures, rich in traditional wisdom, indigenous knowledge and notions about sustainable uses of natural resources coexist in the United States. These diversified groups have one characteristic in common - a desire to live in harmony with nature. The natural resources are considered a gift by these indigenous cultures and are used with respect. This inculcates a responsible behavior towards managing natural resources.

Since the long term goal of environmental education is to change behaviors so that waste of natural resources can be prevented, it is important to share and exchange information as well as learn from the teachings of these indigenous cultures, namely Native Americans.

Another implicit goal in much of environmental education is to allow the learner to discover the world - not only around them, but also in other parts of the globe and in other cultures both nearby and distant. Thus, educators can find value in resources that explore and appreciate the different ways in which various cultures view and understand the human relationship to the Earth.

To achieve these goals, educators of formal and non formal environmental education need to have ready access to resources that provide background and historical information for understanding the native American influence on conservation and conveying environmental ethics learned from these indigenous cultures to the students. Following is a list of resources, in the form of books, video films and articles that give a broad view of the indigenous cultures of the Native Americans.

Where are the resources?

Some resources are available for educators on *different approaches to environmental education by indigenous cultures in North America,* and are found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the material can be accessed by typing

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Print Resources

From ERIC

Coates, Ned. "Teaching about American Indians". ***Nature-Study***, v 46, (March 1994): p 3-4 (EJ 487 001)

Presents aspects of American Indian culture that the environmental education teacher should understand when teaching ecology in a Native American context.

Quinn, -W-J. "Native American Hunting Traditions as a Basis for Outdoor Education". ***Journal of Outdoor Education***, v 26 p 12-18, 1992-93 (EJ 467 628).

Discusses Native American hunting practices and beliefs applicable to an outdoor education curriculum, focusing on respect and reverence for the earth, animals, and the natural word. Suggests that Native hunting rationales could form a philosophical foundation for environmental education and outdoor education programs.

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

Cajete, G. ***Look to the Mountain: An Ecology of Indigenous Education***. U.S.; Colorado, 1994 (ED 375 993).

Explores the nature of indigenous education outlining key elements of American Indians perspectives on learning and teaching. Chapters explore the spiritual, environmental, mythic, visionary, artistic, affective and communal foundations of indigenous education.

Gough, N., Kesson, K. ***Body and Narrative as Cultural Text: Towards a Curriculum of Continuity and Connection***. Australia: Victoria. 1992. (ED 347 544)

Suggests that deconstructing the modern metaphors of nature cultivated by modern science and industrialism is the first step towards reconstructing a relationship with the earth. Environmental educators can learn much from the narrative strategies of pre-modern cultures like Australian Aborigines and Native Americans about the assimilation of language to the world.

Barreiro, J. "The Search for Lessons". ***Akwe:kon-Journal***, v 9, no 2, (Summer 1992) P 18-39 (EJ 460 200)

Contrasts the expropriation and misrepresentation of Indian beliefs by "New Age" gurus with the respectful application of indigenous values to environmental ethics. Discusses indigenous models of ecosystemic adaptation in North and South America, the convergence of conservation efforts and Indian land rights, and issues in Native community-based development.

From ENC

Completing the cycle - it's up to you: responsibility for the environment. Indiana Department of education, Center for School Improvement and Performance, School Assistance Unit. Indianapolis, IN: Indiana Department of Education. 1993. (ENC-000 099)

This instructional module has activities designed to provide students with a variety of concrete ways to study the relationships between behaviors and consequences. Hands-on activities focus on development of many content areas such as language arts, social studies, mathematics, science, fine arts, and health. Investigations also look at how the people, events, and decisions of the past influence the present and future by examining Native Americans, pioneers, and people of today.

Project Willow: understanding Native American culture through environmental education. Developed through a partnership between the Washoe Tribe of Nevada and California and school districts in Douglas and Carson Counties (Nevada) and Alpine County (California). Minden, NV: Douglas County Schools, Science Resource Center, 1995. (ENC-002 744)

Ecological concepts such as resources, carrying capacity, competitions, niches, habitats, ecosystems, food webs, home range, flow of energy, and ecological change are highlighted. The effect of Euro American settlement on Washoe lands along with how the loss of traditional lands has had a profound effect on Washoe people are examined.

The Mohawk Legacy: a matter of survival [videotapes]. Project Future, Potsdam College of the State University of New York . Potsdam, NY: Potsdam College of the State University of New York. 1992 (ENC-000 231)

Produced by the Indians themselves, the video is designed to be a teaching tool for middle school curricula related to biology, environmental studies, technology, culture or history. After discussing the Akwesasne cultural and historical settings, a Mohawk artist and story teller talks about the creation story, Mohawk tradition, symbolism, and their matrilineal social structure.

The Restless Earth [videotapes]. Cardias Production Inc., Chicago, IL: WTTW, 1993 (ENC 001 188)

This series of videos focuses on the research of several new explorers who are on the cutting edge of scientific discovery, extending the frontiers of science, nature, and environmental conservation.

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Information Sheet for Environmental Education Resources

EETAP *Resource Library*

April 1996 Number 4

The Philosophical Approaches to Understanding the Native American Culture Through Environmental Education

Environmental education allows learners to discover the world around them in a meaningful way and encourages active interaction with real life situations. Exchanging and sharing knowledge about citizens' environmental concerns and the strategies different cultures employ to negotiate them can give us an insight into possible solutions are based on deeper understandings of the natural world.

Native Americans form a very important sector of the American community. The culture is indigenous to the land and is rich in philosophies about living in harmony with nature. Environmental relationship, myth, visionary traditions, tribal community, and nature-centered spirituality have traditionally formed the foundation of life for Native Americans. Their lifestyles integrates, rather than conflicts with the natural order of nature. Knowing about Native American perspectives on learning promotes developing a contemporary and culturally based approach to teaching of environmental education. This process of education is well grounded in the basics of interrelationships between humans and nature.

Educators can find value in resources that explore and appreciate the different ways in which various cultures view and understand the human relationships to earth. However, teaching ecology with a native American context is a challenge for some educators. To communicate the valuable messages from native American experiences, educators of formal and non formal environmental education need to have ready access to educational resources that provide background, philosophical -and historical information. This is important for understanding the Native American influence on conservation and conveying environmental ethics learned from these indigenous cultures to the students. Following is a list of resources, in the form of books, films and articles that give a broad view of the indigenous cultures of the Native Americans.

Where are the resources?

Following is a list of some resources available for educators on *The Philosophical Approaches to Understanding the Native American Culture Through Environmental Education* found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the databases can be accessed by typing

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Print Resources

From ERIC

Cajete, G. ***Look to the Mountain: An Ecology of Indigenous Education***. U.S.; Colorado, 1994 (ED 375 993).

Explores the nature of indigenous education outlining key elements of American Indians perspectives on learning and teaching. . Chapters explore the spiritual, environmental, mythic, visionary, artistic, affective and communal foundations of indigenous education.

Coates, Ned. "Teaching about American Indians". ***Nature-Study***, v 46, (March 1994): p 3-4 (EJ 487 001)

Presents aspects of American Indian culture that the environmental education teacher should understand when teaching ecology in a Native American context.

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

Gough, N., Kesson, K. ***Body and Narrative as Cultural Text: Towards a Curriculum of Continuity and Connection***. Australia: Victoria. 1992. (ED 347 544)

Suggests that deconstructing the modern metaphors of nature cultivated by modern science and industrialism is the first step towards reconstructing a relationship with the earth. Environmental educators can learn much from the narrative strategies of pre-modern cultures like Australian Aborigines and Native Americans about the assimilation of language to the world.

Crume, C. T., Lang, G.M. ***Teaching Hunter Responsibility.*** Kentucky: Kentucky State Department of Fish and Wildlife Resources, Frankfort, 1992. (ED 376 994)

This guide discusses the goals of hunter education as developing an environmental ethic among outdoors men based on a deeper understanding of the natural world. One aspect presented is the environmental insights of the Native Americans and how their lifestyles integrated, rather than conflicted, with the natural order of nature. The discussion also addresses the consequences of unlimited growth at the expanse of the environment.

Horwood, B. "The Ceremonial Elements of Non-Native Cultures". ***Journal of Experiential Education***, v 17, no 1, (May 1994) p 12 - 15 (EJ 491 784)

Explores reasons behind the wrongful adoption of Native American ceremonies by Euro-Americans. Focuses on the need for ceremony, its relevance to environmental education, and the fact that some immigrant cultural traditions neither fit this new land nor value the earth. Suggests how non-Natives can express their connection to the land by creating their own earth-wise ceremonies.

Masters, B. N. ***Southeast Tribal World view and Contemporary America***. California, 1993 (ED 356 122)

The publication focuses on the fact that just as Native Americans themselves have been culturally defined through stereotype and generalization, so is their philosophy and cognitive process that has been pigeonholed by mainstream perceptions and definitions. Also presented are conflict between holistic Indian and rational mainstream thought. Insights into dilemmas of Native American community attempts to provide the solutions to environmental crises.

From ENC

Project Willow: understanding Native American culture through environmental education. Developed through a partnership between the Washoe Tribe of Nevada and California and school districts in Douglas and Carson Counties (Nevada) and Alpine County (California). Minden, NV: Douglas County Schools, Science Resource Center, 1995. (ENC-002 744)

Ecological concepts such as resources, carrying capacity, competitions, niches, habitats, ecosystems, food webs, home range, flow of energy, and ecological change are highlighted. The effect of Euro American settlement on Washoe lands along with how the loss of traditional lands has had a profound effect on Washoe people are examined.

The Restless Earth [videotapes]. Cardias Production Inc., Chicago, IL: WTTW, 1993 (ENC 001 188)

This series of videos focuses on the research of several new explorers who are on the cutting edge of scientific discovery, extending the frontiers of science, nature, and environmental conservation.

The Chumash: a changing people, a changing land [Books]. Environmental and Cultural Education Program, National Park Service. Agoura Hills, CA: Santa Monica Mountains National Recreation Area, 1992 (ENC 001 846)

The concepts of biological diversity through the uses of the land by the Chumash (Native Americans) living in the Santa Monica Mountains area from the past through recent times are explored. Also included are a glossary, field trip material list, and bibliography.

This information sheet was prepared by Sabiha S. Daudi, GRA, EETAP Resource Library.

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Information Sheet for Environmental Education Resources

EETAP *Resource Library*

May 1996 Number 5

Native American Legacy of Learning - A Collage of Resources for Education About the Environment

The nature of indigenous education related to both learning and teaching promotes developing a contemporary, culturally based, educational process which must be founded upon traditional values embedded in the culture. Such a learning opportunity has a far reaching and long lasting impact on the learner. It also provides an insight into the cross-cultural views that exist today. An in-depth understanding of these orientations and principles will not only lead to a more open-minded society, but will also promote integration within the communities.

The Native American culture is rich in philosophy of nature-centered spirituality and wise use of natural resources and wildlife. Discovering one's true face (character, potential, identity), one's heart (soul, creative self, true passion), and one's foundation (true work, vocation) is the basis of native American way of life (Cajete, 1994). Building on these versatile concepts, the educators and learners can experience the depth of these notions and develop the capability to make responsible choices for the environment.

The quest for the educators then becomes the ability to access the educational resources that would support and enhance education for ecological thinking and environmental sustainability. This is important in order to instill in learners a sense of concern for, a mutual dependence upon, and an intimacy toward the natural environment.

Based on the traditional learning experiences of native Americans, some educational resources for teaching and learning about the environment have been developed. Databases, lists and directories of these resources are available to those interested. Following is a bibliography which refers to related resources that are readily available.

Where are the resources?

Following is a list of some resources available for educators on *Native American Legacy of Learning* found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the databases can be accessed by typing

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Print Resources

From ERIC

Directory of Native Education Resources in the Southeast Region. Native Education Initiative of the Regional Educational Labs.;Southeastern Region Vision for Education (SERVE). Tallahassee, Florida. 1993. (ED 366 490)

This directory lists approximately 100 tribes, agencies. Organizations, and institutions concerned with American Indian education in six states of Southeastern regions. Those listed are concerned with administration of federal, state, and tribal Indian education programs; technical assistance and training for educators and program administrators; and culture-based environmental education.

Ballard, M. ***Defining the Universal in International Environmental Education through a Content Database.*** South Carolina. 1989 (ED 347 042)

This thesis focuses on the definitional and cross-cultural processes involved in the development of an environmental education database of essential learnings. It consists of over 630 entries coded by subject, educational level, objective and type of content. Cross-cultural compilation and reviews by Indian and US environmental professionals are also in this definitional

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process.

Gough, N., Kesson, K. ***Body and Narrative as Cultural Text: Towards a Curriculum of Continuity and Connection***. Australia: Victoria. 1992. (ED 347 544)

Suggests that deconstructing the modern metaphors of nature cultivated by modern science and industrialism is the first step towards reconstructing a relationship with the earth. Environmental educators can learn much from the narrative strategies of pre-modern cultures like Australian Aborigines and Native Americans about the assimilation of language to the world.

Human Values and the Environment: Conference Proceedings (Madison, Wisconsin, October 1-3, 1992) Report 140. Wisconsin Humanities Committee, Eau Claire. 1992 (ED 361 226)

The human values and the environment conference grew out of growing concerns about the accelerating deterioration of global environmental quality and the danger of building of a value-free approach to how the environment should be managed. Some of humanity's religious and secular value systems in relation to environmental stewardship were also discussed at the conference. The collection of ten conference papers includes "American Indian Philosophy and Perceptions of the Environment" by George Cornell.

From ENC

The Restless Earth [videotapes]. Cardias Production Inc., Chicago, IL: WTTW, 1993 (ENC 001 188)

This series of videos focuses on the research of several new explorers who are on the cutting edge of scientific discovery, extending the frontiers of science, nature, and environmental conservation.

Deep blue sea [kits]. Purple themes Series. Scholastic, Inc.: New York, N, 1993 (ENC 003 014)

This part of Scholastic BANNERS program, focuses on students as thinkers and researchers capable of formulating and answering questions, engages them in themes relevant to their lives, and exposes them to varied literature. The theme of this kit is the ocean. Each kit includes literature sets, theme digest, teacher's theme guide, theme banner and theme bag. Other publications in Purple theme series include *Field Trip USA* and *Native Americans*.

Native American culture across the math & science curriculum: multi disciplinary units of inclusion [Books]. Coordinated by Penny S. O'Brien. 1991 Potsdam, NY: Project future, Potsdam College of the State University of New York. (ENC 000113)
This book includes 14 curriculum units written to meet the learning styles often attributed to Native American students. The units integrate many disciplines and include direct reference to Native American issues. Lesson plan topics include links between cultures and diseases, ecology, and Northeastern Indian cultures' abilities to live in harmony with its physical environment.

Petty, C. A. ***Waterdrum science: science through American Indian arts and culture*** [Print material]. 1994. Bemidji, MN: Larchmere Ltd. (ENC 006 230)
These resources are for educators who wish to incorporate American Indian science, art, and culture into their lessons. Included are integrated hands-on activities in life, earth, and physical sciences from a Native American perspectives. References to other sources of information are also provided at the end of the book.

Destination: Rain Forest [Optical Media], Series: Imagination express. Edmark Corporation. 1995 Redmont, WA: Edmark Corporation. (ENC 005 199)
Designed for Grades K - 6, this CD-ROM is one of a series that gives students tools to explore their creativity and develop their writing skills while learning about the rain forests of the world. The Rain Forest Fact Book offers factual information about rain forest ecology, the Kuna Indian people and some exotic animals.

This information sheet was prepared by Sabiha S. Daudi, GRA, and Hapi Cummins, GRA, EETAP Resource Library.

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Information Sheet for Environmental Education Resources

EETAP *Resource Library*

May 1996 Number 6

The Art of Storytelling - A Popular Tool Used by Native American for Communicating Environmental Messages

Storytelling has traditionally been a pleasant channel of communication between the young and the old, the teller and the listener, and the learner and the teacher. It is an interesting combination of fiction and non fiction which conveys meaningful messages to the listeners. If used in an innovative fashion, storytelling can be a valuable channel for those educators who use non formal methods for teaching.

The art of story telling has cultural roots and this can be employed to teach a culturally pluralistic curriculum. Stories can be selected from a variety of sources and used to match lesson objectives. Criteria for selecting stories should include the authenticity of cultural representation, the amount of cultural information, appropriateness, and the estimated interest of the learner, be it a child or an adult. The stories told can be used for communicating values education to young learners who can then learn to appreciate, care for and interact with biodiversity all around us.

The tenets of environmental education, the synthesis of these tenets with the study of native cultures, and teaching positive social and environmental skills can also be addressed through storytelling.

For American indigenous peoples, oral tradition maintains each group's cultural identity and world view; documents history; and links the group's past, present, and future. Storytelling has been a major mode of passing moral values and teaching to children, as well as passing sacred and specialized knowledge to the next generation (Victro, 1994).

To know more about the theories underlying the art of storytelling and how this skill is used by Native Americans for communicating positive environmental message to the younger generation, the following resources are suggested.

Where are the resources?

Following is a list of some resources available for educators on *The Art of Story Telling* and how this art is used by Native Americans found in the Educational Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the databases can be accessed by typing

http://eelink.umich.edu

Page down to EDUCATION AND INFORMATION directory, EDUCATION directory, ASKERIC or ENC, and click on either home page. You will then be able to search ERIC and ENC databases by following the appropriate pointers.

Print Resources

From ERIC

Victor, M. "Ancient Words: Oral Tradition and the indigenous people of the Americas". In ***Akwe:kon Journal***, v11, n 3-4 (p138-45) Fall-Winter 1994. (EJ 496 776)

A collaborative effort of "Akwe:kon Journal" and the Smithsonian's National Museum of the American Indian, this article focuses on how American indigenous people use their oral traditions to maintain their cultural identity and document their past.

Randic, J. ***The Role of Native American Traditions in the College Composition Classroom***. 1992 U.S.; Arizona (ED 351 691)

Two speeches (Leslie Marmon Silko's speech "Language and Literature from Pueblo Indian Perspective" and N. Scott Momaday's speech "Man Made of Words") are included in this publication. This Native American literature offers a wealth of possibilities for the composition teacher. A sense of community and

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

reader participation are encouraged.

Demarrais, K. B. And Others. "Meaning in Mud: Yup'ik Eskimo Girls at play". In ***Anthropology and Education Quarterly***, v 23 n 2 (p 120-44) June 1992 (EJ 448 044)

Describes storyknifing, a traditional way of storytelling illustrated through pictures traced in mud, by young girls in a yup'ik Eskimo village on the Kuskokwim River (Alaska). Storyknifing provides a forum in which young girls learn cultural and cognitive knowledge.

Herring, R. D. And Meggart, S. S.. "The Use of humor as a Counselor Strategy with Native American Indian Culture". In ***Elementary School Guidance & Counseling***, v29 n1 (p67 - 76)) October 1994. (EJ 500 911)

Advocates that counselors incorporate humor in their work with native Americans. Discusses psychological theories of humor and explores Native American humor. Examines humor's implications for counseling and suggests puppets, clowns, games, word games, and other devices.

From ENC

Destination: Rain Forest [Optical Media], Series: Imagination Express. 1995 Edmark Corporation. Redmont, WA: Edmark Corporation. (ENC 005 199)

Designed for Grades K - 6, this CD-ROM is one of a series that gives students tools to explore their creativity and develop their writing skills while learning about the rain forests of the world. The story ideas section assist students as they develop illustrated books and poetry; on screen puppet plays and theater productions;

Caduto, J. M. And Bruchac, J. ***Keepers of the Earth: Native American stories and environmental activities for children*** [Print Material]. 1989 Golden, CO: Fulcrum Publishing. (ENC 000 457)

This book is a collection of native American Indian stories and hands-on activities that promote understanding and appreciation of, empathy for , and responsible action toward the earth, including its people. Stories and activities are arranged under broad topical headings that include agriculture and farming, animals, Earth stewardship, ecological principles and human impact on Earth.

Caduto, J. M. And Bruchac. ***Keepers of the Night: Native American stories and nocturnal activities for children*** [Books]. 1994 Golden, CO: Fulcrum Publishing (ENC 000 458)

Stories and activities in this book for grades K to 6 provide a complete program of study in the important concepts and topics of astronomy, nighttime weather, and other aspects of night sky as well as nocturnal plants and animals from habitats throughout North America. A variety of topics including *Plants and Animals in the Wild: To Collect or Not to Collect* and *Teaching Racial tolerance, Understanding and Appreciation.* The book also includes a map showing the cultural areas and tribal locations of the Native American groups.

Mini-information booklets [Books], USC Sea Grant Program. 1982 Los Angeles, CA: USC Sea Grant Program (ENC 000 349)

This series of three mini information booklets can be used as reference materials for studying specific marine animals, story telling, drawing, writing for the school newspaper and other activities that require knowledge of marine animals and the marine environment. Also available to be used in conjunction with the mini information booklets is a collection of marine education materials developed by the USC Sea Grant Program, including Wet and Wild, Marine Studies Idea Book. And Tuga the Turtle.

This information sheet was prepared by Sabiha S. Daudi, GRA, and Hapi Cummins, GRA, EETAP Resource Library.

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Trends and Issues in Environmental Education

EETAP *Resource Library*

August 1996 Number 7

Dwight D. Eisenhower Professional Development Federal Activities Program and Environmental Education

The Eisenhower Federal Activities Program is a discretionary grant program which funds projects of national significance that contribute to the development and implementation of high-quality professional development activities. Reauthorized under the *Improving America's School Act of 1994*, the Eisenhower Program supports teacher professional development in all core academic subjects. Prior to 1994, the Program was focused solely on mathematics and science education.

Among the projects currently supported under this program are a national clearing house and ten regional consortia for mathematics and science education, ten statewide curriculum frameworks projects in mathematics and science, nine initial teacher professional development projects, and sixteen projects to train teachers in environmental education, female and minority issues, and the use of technology.

This informative ***trends*** sheet presents the five Eisenhower projects that focus primarily on teacher's needs in the field of environmental education. What follows here is a descriptive summary of these projects. For more information on any of these projects, please contact the individual identified with each summary.

ENVIRONMENTAL ISSUES FORUM

Contact: Carol Fialkowski, Project Director
Chicago Academy of Sciences
2001 North Clark Street
Chicago, Illinois 60614
Phone: (312)549-0606-2028

This project provides a series of professional development workshops, summer institutes, and a support network of over 400 K-12 teachers in Chicago's Amundsen High School attendance area. It is designed to empower teachers as environmental educational leaders who teach, lead, and model effective environmental education for their students, other teachers, parents, and community members. Participating teachers use cooperative learning strategies, develop hands-on activities for a variety of environmental topics, and are introduced to performance based assessment tools.

TEACHER ENHANCEMENT IN ENVIRONMENTAL EDUCATION (TEEE)

Contact: June Foster, Project Director
Technical Education Resource Center (TERC)
2067 Massachusetts Avenue
Cambridge, Massachusetts 02140
Phone: (617)547-0430

TERC collaborates with the Global Rivers Environmental Education Network on the Teacher Enhancement in Environmental Education project. The overall goal of the project is to develop and implement a model for teacher professional development in environmental education for grades K-5.

The project goals are doublefold and will be to 1) design and demonstrate a new model of intensive staff development which will promote the adoption of innovative practices in environmental education; and 2) use a national telecommunications network as a means for facilitators and teachers to engage in on-going dialogue about their environmental education practice and to access curricular resources. The project's participants will also serve as professional development facilitators for improving environmental education in their respective schools.

GREAT LAKES ENVIRONMENTAL EDUCATION INITIATIVE

Contact: Claudia Douglass, Project Director
Central Michigan University
Mt. Pleasant, Michigan 48859
Phone: (517)774-4387

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

The Great Lakes Environmental Education Initiative is a unique approach to watershed-based environmental education. This project makes use of an existing network of teachers from each of the Great Lakes states and Ontario. The project focuses on the Great Lakes Basin and provides in-depth training in scientific concepts and field methods, development of instructional materials, conduct of professional development in-service workshops , and development of leadership skills in 54 teacher consultants. Project staff and the Teacher Consultants also plan and conduct 5-day workshops to impact 180 other classroom science teachers in the region

The project serves as a national model using a water basin strategy for integrating water-based environmental education into the curriculum in a manner that is consistent with national standards in science and geography.

SCIENCING WITH WATERSHEDS, ENVIRONMENTAL EDUCATION AND PARTNERSHIPS

Contact: Deborah Bainer, Project Director
The Ohio State University
Mansfield Campus
1680 University Drive
Mansfield, OH 44906
Phone: (419)755-4287

This project improves the knowledge and skills of elementary school teachers in environmental education by developing partnerships with environmental science professionals who investigate local environmental issues within selected watersheds. Partnership teams attend intensive summer institutes focused on science content and instructional change, and collaboratively plan, implement and evaluate year-long action plans for student activities related to water topics. Teachers and partners use mentoring, networking, and inquiry strategies to investigate environmental issues and model these strategies in elementary classrooms to enhance student motivation and learning.

COOPERATIVE ACTIVITIES FOR STUDYING ENVIRONMENTAL SCIENCE

Contact: Ralph T. Nelson, Project Director
Columbia Education Center
11325 SE Lexington
Portland, Oregon 97266
Phone: (503)769-2346

In this project, the Columbia Education Center collaborates with educational agencies in Oregon, Washington, Idaho, Canada, and Finland. The project:
1) extends and enriches the secondary grades (7-12) environmental science curriculum;
2) enhance the instructional skills of teachers; and
3) expand teacher's capacity to plan and deliver superior interdisciplinary, environmentally-focused instructions.

The project prepares teachers for effective classroom instructional methods and innovative activities that teach students the basic scientific and ecological principles associated with biodiversity, species survival, and environmental protection. In addition, teachers are instructed in the use of research and critical- thinking skill needed to examine environmental issues.

These projects, other Eisenhower grants and the Eisenhower National Clearinghouse are supported by the U.S. Department of Education- Office of Education, Research and Improvement (OERI). The Educational Resources Information Center/Center for Science and Mathematics (ERIC/CSMEE) is also supported by OERI. For information on programs of OERI, contact:

U.S. Department of Education
Office of Education, Research and Improvement
Dwight D. Eisenhower Professional Development
Federal Activities Program
555, New Jersey Ave. N.W.
Washington, D.C. 20208
Phone: 1-800 424 1616

This information sheet was prepared by Joe E. Heimlich, Ph. D., and Sabiha S. Daudi, GRA, EETAP Resource Library.

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Trends and Issues in Environmental Education

EETAP *Resource Library*

August 1996 Number 8

The Regional Educational Laboratory Program

The Office of Educational Research and Improvement (OERI) supports educators and policy makers in their effort to solve pressing education problems through a network of 10 regional education laboratories. Using the best available research and development information and the experience and expertise of highly skilled professionals, laboratories try out new approaches to teaching and learning; provide training and technical assistance to teachers, administrators and policy makers; and disseminate knowledge and findings about what works with diverse student groups under a variety of conditions.

The laboratories have several specific mandates that frame their work. They have both a national and regional focus. An overarching mandate of the laboratories is to strengthen state and local efforts to improve schooling for students at risk of leaving school unprepared for successful employment, further education, or productive citizenship. Under congressional direction, 25 percent of laboratory funds are targeted to the needs of rural, small schools. Another Congressional priority directs the laboratories to collaborate with one another and with external organizations to support teaching and learning. Initially, with U.S. Department of Health and Human Services funding, the laboratories are exploring ways to improve the transition of children from Head Start and other early childhood programs to elementary school.

Within the broad mandates described above, individual laboratory programs are set by regional governing boards. The boards guide the laboratories' efforts to adapt national education reform strategies to regional, state, or local policies and initiatives. At the same time, the governing boards ensure that these institutions are responsive to the specific needs of school, teachers, students in their jurisdictions.

The laboratories also conduct work that supports each of the eight national goals. The four goals receiving greatest attention from laboratory efforts are Goals 1 (school readiness). 3 (student achievement and citizenship), 4 (mathematics and science), and 7 (teacher education and professional),. Most of the laboratories are collaborating with existing and developing networks for systematic reforms assistance in their state with a special focus on those networks targeting the implementation of goals 2000. Laboratories are actively engaged in developing and disseminating practice-based knowledge and assistance to inform the discussion of issues involved in the standards-based approach to reform and then to help educators with their implementation.

Why should environmental education be involved?

As the formal education systems in the U.S. move to implement standards and frameworks, environmental education (EE) has an opportunity to strengthen its role in formal education. The non formal EE centers and programs can also create strong relationships with schools. The Regional Education Laboratories are potentially excellent partners for reaching these audiences in new and exciting ways.

The work of Regional Educational Laboratories is broadly oriented towards educational improvement. The resource and expertise of these institutions can also help environmental educators improve their practice. Contact your Regional Laboratory to learn about the programs and efforts underway.

The following information includes a list of the 10 regional education Laboratories with their addresses, states served and area of speciality of each laboratory.

The Northeast and Islands Laboratory at Brown University

Address: 222 Richmond Street, Ste 300
Provience, RI 02903-4226
Phone: (800) 521- 9550 Fax:(401) 421-7650
e-mail: LAB@brown.edu
States served: Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, Puerto Rico and the Virgin Islands.
Speciality Area: Language and Cultural Diversity

A publication of the Environmental Education and Training Partnership, funded by the U.S. Environmental Protection Agency and managed by the North American Association for Environmental Education.

Mid-Atlantic Laboratory for Student Success
Address: Temple University
Center for Research in Human Development and Education
933 Ritter Annex, 13th St. and Cecil B. Moore Ave., Philadelphia, PA 19122
Phone: (215) 204-3030 Fax: (215) 204-5130
e-mail: lss@vm.temple.edu
Internet: http://blue.temple.edu/~crhde
States served: Delaware, Maryland, New Jersey, Pennsylvania, and Washington, DC.
Speciality Area: Urban Education

Appalachia Educational Laboratory
Address: Post Office Box 1348
Charleston, WV 25325-1348
Phone: (304) 347-0400 Fax: (304) 347-0487
e-mail: aelinfo@ael.org Internet: http://www.ael.org
States served: Kentucky, Tennessee, Virginia and West Virginia
Speciality area: Rural Education

Southeast Regional Vision for Education
Address: Post Office Box 5367
Greensboro, NC 27435
Phone: (910) 334-3211 Fax: (910) 334-3268
e-mail:nfo@SERVE.org Internet: http://www.serve.org
States served: Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina
Speciality area: Early Childhood Education

North Central Educational Laboratory
Address: 1900 Spring Road, Suite 300
Oak Brook, IL 60521-1480
Phone: (708) 571-4700 Fax: (708) 571-4716
e-mail: info@ncrel.org Internet: http://www.ncrel.org
States served: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin
Speciality area: Education Technology

Southwest Educational Development Laboratory
Address: 211 East Seventh Street
Austin, TX 78701-3281
Phone: (512) 476-6861 Fax: (512) 476-2286
e-mail: jfoster@sedl.org Internet:http://www.sedl.org
States served: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas
Speciality area: Language and Cultural Diversity

Mid-Continent Regional Educational Laboratory
Address: 2550 South Parker Road, Suite 500
Aurora, Colorado 80014-1678
Phone: (303) 337-0990 Fax: (303) 337-3005
e-mail: info@mcrel.org Internet: http://www.mcrel.org
States served: Colorado, Kansas, Missouri-Nebraska, North Dakota, South Dakota, Wyoming
Speciality area: Curriculum, Learning and Instruction

Northwest Regional Educational Laboratory
Address: 101 SW Main Street, Suite 500
Portland, OR 97204-3297
Phone: (503)275-9500 Fax: (503)275-9489
e-mail: info@nwrel.org Internet: http://www.nwrel.org
States served: Alaska, Idaho, Montana, and Washington
Speciality area: School Change Processes

WestEd - Uniting the **Far West Research Laboratory for Educational Research and Development** and the **Southwest Regional Laboratory**
Address: 730 Harrison Street
San Francisco, CA 94107
Phone: (415) 565-3000
e-mail: tross@fwl.org Internet: http://www.fwl.org
States served: Arizona, California, Nevada, Utah
Speciality area: Assessment and Accountability

Pacific Region Educational Laboratory
Address: 828 Fort Street Mall, Suite 500
Honolulu, HI 96813-4321
Phone: (808) 533-6000
e-mail: askprel@prel.hawaii.edu
Internet: http://prel-oahu-1.prel.hawaii.edu
Region served: American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia (Chuuk, Kosrae, Pohnpei. and Yap), Guam, Hawaii, Republic of the Marshall Islands, and the Republic of Palau.

This information sheet was prepared by Joe E. Heimlich, Ph.D., and Sabiha S. Daudi, GRA, EETAP Resource Library.

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Trends and Issues in Environmental Education

EETAP Resource Library

October 1996 Number 9

Making the Experience of Environmental Education Experiential

A strength of environmental education is that it often engages the learner through exploration, examination, gaming, discovery, and/or hands-on activities. The nature of environmental education is such that these activities both draw the learner into the learning exchange and also become the basis for the learning that is to follow. Experiences by themselves, however, do not necessarily teach or teach the intended outcomes: it is the role of the educator to help the learner frame knowledge from the impression, the game, the experiment, the discussion, the exploration, the hike, the animal, or whatever the experience. This *Trends and Issues* explores what makes an experience in environmental education experiential learning.

What is experiential learning?

When a visitor reads a sign in a nature reserve, does learning occur? What changes an observation into an understanding? At what point does a "fact" become knowledge? These are difficult questions and have no single or simple answer. Yet teaching and learning are predicted on the belief that there is the possibility of creating knowledge from information and sensory experiences.

Some theorists use the phrase "meaning making" to explain what occurs. Although an educator cannot make someone learn, the educator can structure an experience so that the potential for learning is enhanced. In experiential education, the process is usually described in a four or five step cycle or sequence:

1. Create the opportunity;
2. Involve the learner in an experience;
3. Process (discuss) the experience;
4. Generalize the experience to other situations;
5. Apply the knowledge

These stages are often expanded/contracted and sometimes follow in a different progression. Yet writers on experiential education all tend to stress the similarities more than the differences. The dominant belief is that the experience does not teach, but prepare the learner for understanding the outcomes of the experience. The "learning" occurs in the processing and application that follow the experience.

Making learning experiential

Learning through an experiential process means taking a learner through each step of the cycle. Several tenets emerge in the literature that highlight some of the beliefs underlying experiential environmental education.

- An experience is unique for each learner
- Each learner will reach to an experience in a unique manner
- Any experience can be used as a basis for learning, regardless of outcome
- Individual learning preferences can be met in different stages/steps of the cycle
- The learner must create a framework for understanding the experience in a way that is relevant to prior experience and knowledge.

In environmental education, the experience is often given far more weight (and time) than the processing of the experience. Critics of environmental education sometimes point out the lack of action or individual decision making in environmental education programs which directly correlate to the application stage in the experiential cycle.

Because environmental education relies so heavily on experiences, the effort to create more opportunity for both processing and application is a logical extension to enhance learning. Such an effort can help make the wonderful experiences we have experiential.

To support environmental educators in their efforts to provide meaningful and experiential learning to the learners, we have identified some resources. These innovative approaches necessary to link adventure and environmental education and suggest ways to enhance the processing of information gained through active encounters.

Where are the resources?

Following is a list of some resources available for educators on *The Philosophical Approaches to Understanding the Native American Culture Through Environmental Education* found in the Educational

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Resources Information Center (ERIC) and Eisenhower National Clearinghouse (ENC) collections. To read about these resources and learn where to get them, search the ERIC or ENC collections on line or at a local library or university. On line, the databases can be accessed by typing

http://eelink.umich.edu

Page down to EDUCATION AND INFORMATION directory, EDUCATION directory, ASKERIC or ENC, and click on either home page. You will then be able to search ERIC and ENC databases by following the appropriate pointers.

Print Resources

From ERIC

Hanna, G, ***Bridging the Gap: Linking Adventure and Environmental Education*** 1991 Alberta, Canada: EDRS. (ED 342 589)

This paper discusses ways to link components of the adventure education and environmental education system in Alberta, Canada. The paper list examples of teaching units emphasizing a theme, a metaphor, or a cognitive activity. The examples categorize activities into the foundation, exploration and empowerment levels.

Wilson, Ruth A. "Nature and Young Children: A Natural Connection" In ***Young Children*** v50, n6 (p 4-11) Sept 1995. (EJ 510 603)

This article discusses the value of nature education to early childhood education. The domains of adaptive, aesthetic, cognitive, communication, sensorimotor, and socioemotional development are explored. Guidelines, suggestions, and resources for infusing nature education into the early childhood education are offered.

Silcox, Harry C. "Experiential Environmental Education in Russia: A Study in Community Service Learning" In ***Phi Delta Kappan*** v74 n9 (p 706-709) May 1993.
(EJ 463 874)
This article reports on the experiences of 26 U.S. high school students and environmentalists in Russia where they participated in community services/experimental learning environmental project.

From ENC

What Research says to the science teacher. Volume 1 [Print material], Mary B, Rowe (Ed.) 1978 Washington, DC: The National Science Teachers Association. (ENC 003 578)

This first volume of the series examines the role of experiential learning in science, such as how to assess student's understanding of basic concepts from laboratory experiences. Teachers are invited to do field based research to contribute to the data regarding outcomes of planned field experiences.

Sharing success: mathematics and science education [Print material] 1993 Tallahassee, FL : SERVE (South Eastern Regional Vision for Education, Consortium for Mathematics and science Education). (ENC 001 119)

This publication has information about professional development and reference material from exemplary educational programs of SERVE. Among the many programs of excellence discussed are TACO (Take a Class Outdoors) and Using the Outdoors to Teach Experiential Science.

Braus, J. Layton, P. Van Cleef, C. ***Exploring Environmental Issues: focus on forests*** [Print Materials] 1995, developed by Project Learning Tree. Washington, DC: American Forest Foundation.

This Project Learning Tree (PLT) module uses forest issues as a focus for students to investigate and define an environmental issue, identify key players and point of view, generate alternative solutions, recognize and weigh trade off, listen to their peers, and make personal and group decisions.

This information sheet was prepared by Joe E. Heimlich, Ph. D., and Sabiha S. Daudi, GRA, EETAP Resource Library.

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